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## APPLICATIONS

Test cells  
Nuclear accelerator control and monitoring  
General-purpose time interval measurement

# V625

## 6-channel Time Interval Counter



Measures the intervals from a common start pulse to 6 stop pulses

## FEATURES

- 6-channel capacity
- TTL and optically-isolated input options
- 8 clock frequencies (1 Hz to 10 MHz)
- 16-bit pulse counters per channel (max count=65,535)
- 24-bit time interval counters per channel (16,777,215)
- Individual interrupt source bit per channel

## GENERAL DESCRIPTION

The V625 is a single-width, C-size, register-based, VXIbus module that contains six channels of time interval counters. Data from the module can be used to represent the time elapsed between a Start and a Stop pulse, or it can be used to determine the average frequency of an input pulse train. Each channel contains a 24-bit time interval accumulator and a 16-bit, presettable input pulse counter. Latches are provided to hold the pulse count, thereby eliminating the need to continuously rewrite the count value. Time intervals are derived from a common, crystal-controlled clock on the module. The clock frequency is software programmable, and can range from 1 Hz to 10 MHz, in decade steps. Once the timing cycle has been initiated (by a software command or front-panel input signal), the accumulators record timing information until the preset number of input pulses has been received by the V625. The overflow from each channel's input pulse counter or time interval accumulator stops the timing sequence for that channel and sets an interrupt source bit. An interrupt Mask register allows any source bit or combination of bits to generate an interrupt request.

The common Start signal and the six pulse inputs are connected to the module's circuitry via single-pin LEMO connectors on the module's front panel. The Start signal is a low-true, TTL pulse which initiates the timing cycle on the low-to-high transition. By order option, the pulse inputs are either TTL-level signals or optically-isolated, 10 V pulses supplying 15 mA of drive current. The maximum frequency of the input pulses is 5 MHz, and the counter chains are incremented on the low-to-high transition of each pulse.

The V625 supports both static and dynamic configuration. Access to the data is through memory locations indicated by the Offset Register within the VXIbus Configuration Register set, using A24/A16, D16 data transfers.

| ITEM  | SPECIFICATION   |
|---|---|
| Number of Channels  | 6   |
| Input Signals   | TTL-level or optically-isolated, 10 V, 15 mA signals  |
| Pulse Inputs<br>Input-output insulation<br>Input-output resistance  | 1 $\mu$ A, with 45% relative humidity,<br>$t = 5s$ , $V_{I-O} = 3$ kV dc, $T_A = 25^\circ C$<br>1012 $\Omega$   |
| Maximum Input Pulse Rate  | 5 MHz with a 50% duty cycle   |
| Time Interval Clock<br>Source<br>Frequency choices (programmable)   | Crystal-controlled, common to all channels<br>1 Hz, 10 Hz, 100 Hz, 1 kHz, 10 kHz, 100 kHz, 1 MHz, and 10 MHz  |
| Crystal Source<br>Overall stability   | $\pm 0.01\%$ , $0^\circ C$ to $+70^\circ C$   |
| Maximum Count Value<br>Input pulse counter chain<br>Time interval accumulators  | 65,535 (16 bits)<br>16,777,215 (24 bits)  |
| Input Connector Types   | Single-pin LEMO receptacle, shell size 00   |
| Mating Connectors   | KineticSystems Model 5910-Z1A   |
| Power Requirements<br>+5 V  | 3.2A, typical   |
| Environmental and Mechanical<br>Temperature range<br>Operational<br>Storage<br>Relative humidity<br>Cooling requirements<br>Dimensions<br>Front-panel potential | $0^\circ C$ to $+50^\circ C$<br>$-25^\circ C$ to $+75^\circ C$<br>0 to 85%, non-condensing to $40^\circ C$<br>10 CFM<br>340 mm x 233.35 mm x 30.48 mm<br>(C-sized VXIbus)<br>Chassis ground |



#### RELATED PRODUCTS

Model 5857-Axyz Cable—1-contact LEMO to Unterminated  
Model 5857-Bxyz Cable—1-contact LEMO to 1 -contact LEMO  
Model 5857-Hxyz Cable—1-contact LEMO to BNC shielded  
Model 5910-Z1A Connector—1-contact LEMO

#### ORDERING INFORMATION

| MODEL     | DESCRIPTION  |
|-----------|--|
| V625-LA11 | 6-channel Time Interval Counter, TTL Inputs                |
| V625-LB11 | 6-channel Time Interval Counter, Optically-isolated Inputs |

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